3.1.3.2 Planning Basis Option

The Planning Basis Option is similar to the Full Separations Option, the primary difference being that the liquid mixed transuranic waste/SBW would not be processed (separated) directly but would be calcined in the New Waste Calcining Facility. The calciner would continue to operate in high temperature mode until June 2000, as required by the Notice of Noncompliance Consent Order with the State of Idaho. At that time, DOE would declare its intent to seek a RCRA permit to operate the calciner and proceed to file the necessary documents with the State and conduct any testing or data gathering that might be required. In addition, the calciner would be upgraded to comply with the Maximum Achievable Control Technology air emission requirements. Following upgrades, the calciner would be restarted to treat the liquid mixed transuranic waste/SBW. The mixed transuranic calcine would be added to the mixed HLW calcine already in the bin sets and later retrieved for dissolution and separation. This option would use a chemical separations facility to remove cesium, transuranic, and strontium, as in the Full Separations Option. These constituents, termed the mixed HLW fraction, account for most of the radioactivity and long-lived radioactive characteristics found in the HLW calcine and liquid mixed transuranic waste. The HLW fraction would then be vitri-

Waste Fractions - What are they?

Plans for managing HLW at several DOE sites include processes that separate the waste into fractions. The advantage of this approach is that the volume of waste needing to be disposed of in a geologic repository can be substantially decreased, thereby saving valuable repository space and reducing costs associated with disposal.

Generally, HLW separation technologies isolate key radionuclides, which because of high radioactivity levels or long radioactive half-lives should be disposed of in a geologic repository. Separated waste destined for a repository is referred to as the HLW fraction or transuranic fraction, depending on the kinds of radionuclides present. If this fraction includes sufficient fission products, such as cesium and strontium, which result in high radioactivity levels, and contains sufficient long-lived transuranic (heavier than uranium) radionuclides, then it is properly classified as HLW and should be disposed of at a geologic repository. If this fraction contains only the long-lived transuranic radionuclides in concentrations greater than 100 nanocuries per gram, then it is properly classified as transuranic waste and, provided other acceptance criteria are met, could be disposed of at the Waste Isolation Pilot Plant, a geologic repository in New Mexico.

The waste remaining after the HLW or transuranic waste fractions have been removed is the low-level waste fraction. It does not contain radioactive fission products and long-lived radionuclides in sufficient concentrations to warrant isolation in a geologic repository. Instead, near-surface disposal facilities are appropriate for this type of waste, provided performance assessment requirements and regulatory standards are met. In this EIS, the radioactivity in low-level waste fractions would not exceed Class C concentration limits established by the Nuclear Regulatory Commission for commercial low-level waste disposal facilities (10 CFR 61).

In order for a fraction to be classified as transuranic or low-level waste, DOE must follow an evaluation process (DOE M 435.1-1 Chapter II). See Chapter 1 Text Box: "What is Waste Incidental to Reprocessing" and Section 6.3.2.2 for further discussion of this process.

Transuranic waste delivery to Waste Isolation Pilot Plant in New Mexico.

fied, packaged in Savannah River Site-type stainless steel canisters and stored onsite until shipped to a geologic repository.

The process stream remaining after separating out the HLW fraction would be managed as a low-level waste, provided DOE determines through an evaluation process that it is waste incidental to reprocessing (DOE M 435.1-1, Chapter II). The low-level waste would then be solidified in a grouting facility. Concentrations of radioactivity in the grout would result in its classification as a Class A type low-level waste, which is suitable for disposal in a near-surface landfill. Under this alternative, the low-level waste Class A type grout would be transported to a disposal facility outside of Idaho. For purposes of the transportation analysis, DOE used the commercial radioactive waste disposal site operated by Envirocare of Utah, Inc., located 80 miles west of Salt Lake City. However, this disposal operation is currently not licensed to accept INTEC low-level waste and the inclusion of this facility in this EIS is for illustrative purposes only.

Mercury becomes concentrated in the tank heels as a result of offgas scrub from the calcining process. The waste containing mercury would be removed from the tank heels, treated, packaged and sent to the Waste Isolation Pilot Plant for disposal.

DOE devised the Planning Basis Option to reflect the major commitments made through agreement with the State of Idaho, prior Records of Decision, and existing DOE plans, such as those in *Accelerating Cleanup: Paths to Closure* (DOE 1998b). This implies that calcining of the liquid mixed transuranic waste/SBW would be

completed by 2012, as agreed to in the Settlement Agreement/Consent Order. However, the baseline schedule reevaluation prepared for this EIS estimates that a more realistic calcine completion date would be 2014. In order to meet the 2012 date, a number of processes would have to be accelerated. First, funding would have to be available beginning in fiscal year 2000, so that conceptual design can begin for upgrades to meet Maximum Achievable Control Technology requirements. Second, assuming 75 percent operating efficiency, the calciner would have to be able to resume processing liquid mixed transuranic waste/SBW by 2010 if the 2012 deadline is to be met. Delays in obtaining the RCRA permit or some other interruption could also stress an already tight and optimistic schedule.

The Settlement Agreement/Consent Orders states: "In the event any required NEPA analysis results in the selection after October 16, 1995, of an action which conflicts with any action identified in this Agreement, DOE or the Navy may request a modification of this Agreement to conform the action in the Agreement to that selected action. Approval of such modification shall not be unreasonably withheld."

Figure 3-6 illustrates the Planning Basis Option. Although not depicted on the figure, the High-Level Liquid Waste Evaporator, Liquid Effluent Treatment and Disposal Facility, and Process Equipment Waste Evaporator would continue to operate to reduce the volume of mixed transuranic waste/SBW and enable DOE to cease use of the pillar and panel tanks in 2003.

Transportation for this alternative includes shipping vitrified HLW to a geologic repository and shipping the low-level waste Class A type grout to an offsite facility.

The major facilities and projects required to implement the Planning Basis Option are listed in Appendix C.6, except for transportation projects, which are addressed in Appendix C.5. Figure 3-7 locates the facilities at the INTEC (see Figure 3-4 for comparison).

FIGURE 3-7.
Artist's conception for location of facilities that would be constructed under the Planning Basis Option.